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ABSTRACT

Fifty women and 43 men who did little college study in the four years following high school graduation were retested with a multiaptitude precollege battery. Results show that, in the absence of continuing education, the 50 women declined in intellectual growth, while the men grew slightly. The women utilized in the study were employed, for the most part, in low-level office jobs, the men in low-level technical jobs. Only 3 of the 50 females were primarily housewives. The authors cite the men's military training and present college enrollment as the most obvious background differences between the sexes. A general conclusion is that women not enrolled in school suffer more intellectually than do men. (TL)

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Sex Differences in Aptitude Maturation in a Noncollege Sample[1]

Patricia W. Lunneborg and Clifford E. Lunneborg

Fifty women and 43 men who did little college study in the four years following high school graduation were retested with a multiaptitude precollege battery. A previous sample which attended college during this period improved significantly on all tests and no sex differences in maturation of abilities were to be found. In contrast, in the absence of continuing education, these 50 women declined in intellectual growth, while the men grew slightly. The women were characterized as working in low-level office jobs, the men in low-level technical jobs. Only 3 of the 50 females were primarily housewives. The men's military training and present enrollment in college were the most obvious background differences between the sexes. The conclusion is inescapable that women not enrolled in school suffer more intellectually than do men.

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[1]Test scoring, coding, and preparation of these considerable data for analysis were handled entirely by Virginia A. de Wolf, Bureau statistician.

Bureau of Testing Project 123

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Sex Differences in Aptitude Maturation in a Noncollege Sample

In an earlier study of intellectual growth in an environment of continuing education (Lunneborg, 1969), it was concluded that there were no sex differences in aptitude maturation. The same pattern of sex differences characterized this group in high school and college, i.e., female superiority on verbal tests and male superiority on nonverbal tests. College study meant an increase in both sexes on all measures including such unexpected findings as better mechanical reasoning and spatial ability in women three-quarters of whom were humanities and social science majors. But would above-average high school students who did not complete college in those next four years mature in the same way? The present study was undertaken with the expectation that both sexes would likely mature less when not in school, but at the same rate, for equal rates have been found not only in a college sample but high school students as well (Droege, 1967).

Method

Subjects. Ideal subjects would have been people who, although they had taken the precollege test battery in high school, could be found four years later without any intervening, formal education. For lots of reasons such people didn't exist. First, if one takes a precollege test battery, presumably one intends to go to college; if one does not intend to go to college, one does not take it and cannot be retested. Secondly, for only some of their students do high schools maintain up-to-date addresses, and again, those who stay in contact tend to be those who continue their education. Thus, in the summer of 1969, when local high schools were asked for

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addresses for the class of 1965, only 2,150 of a possible 3,000 addresses were returned. Even so, fifteen percent of these original mail questionnaires were returned as undeliverable. Then for the remaining 1,800 the actual return rate was low, only 33%, and appears (again) heavily weighted by the educated--95% of the 597 students returning questionnaires had attended college, earning an average of 120 credits in the interval. An earlier study summarized prediction data for all completed questionnaires (Lunneborg, 1970). Lack of funds precluded subsequent mailings, phonings, etc.

What the present sample ultimately consisted of were individuals who had taken the precollege battery autumn 1964, graduated from one of eight metropolitan Seattle high schools in June 1965, were living in the Seattle area, and most importantly, (1) indicated on the questionnaire their willingness to retake the tests, and (2) had earned fewer than 100 hours of college credit since high school. Of the 138 possible subjects so identified, 93 (50 females, 43 males) were able to complete the readministration for which they were given $10.00 plus some guidance information based on test results.

Procedure. In addition to the biographic data gleaned from the mailed questionnaire, Ss retook tests yielding the following scores: English composite, vocabulary, English usage, spelling reading speed, reading comprehension, verbal composite, quantitative skills, applied mathematics, mathematics achievement, quantitative composite, space ability, and mechanical reasoning. Test and retest scores were correlated and change scores

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correlated with educational and training experiences. Frequency distributions for test scores and biographic information were developed. All analyses were conducted separately for the sexes.

Results

Table 1 presents the distribution of college credit obtained by females and males over the preceding four years. Females had a mean of 39 quarter hours, males a mean of 48, which difference, given the large variance in both samples, was not significant. On the average this sample had completed the equivalent of a year of college in contrast to the total group of 597 from which they were drawn which on the average was in the middle of the junior year. Table 2 summarizes other post-high school education by sex. Where the sexes differed the most was in current enrollment in college (72% of the men vs. 30% of the women), and in extent of educational goals--58% of the men indicated college work after the baccalaureate vs. 20% of the women. The women indicated much later dates of completion of their educational goals--54% of them did not plan to finish school before 1973 while this was true for only 28% of the men, surprising in the light of (1) time lost by men in the military, e.g., 23 of the 43 were in the service in 1967-68, and (2) the higher educational goals of the men. While the proportions of each sex which had training other than college since high school were roughly the same (70%), men got such training in armed forces schools while the women were trained on the job.

To characterize responses to all of these biographic items, the women had gone to college immediately after high school but quickly dropped out and began working, which work they continued whether married or not. The

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Table 1

Distribution of Total College Credit for the Sexes

Credits	Females (N = 50)	Males (N = 43)
10 or less	10	6
11-20	5	4
21-30	6	2
31-40	7	5
41-50	8	8
51-60	2	3
61-70	3	1
71-80	2	8
81-90	3	5
91-101	4	1
	$\bar{X}$ = 39 SD = 30	$\bar{X}$ = 48 SD = 30

Table 2

Frequencies of Post-High School Experiences for the Sexes

Experiences	Females (N = 50)	Males (N = 43)
Number schools attended after HS		
0	6	3
1	23	25
2	18	12
3	2	3
4	1	0
First school 4-year	29	24
First school 2-year	15	16
In college fall 69	15	31
Associate arts degree	5	1
Number majors		
0	8	5
1	32	27
2	8	11
3	2	0
Educational goal		
Will not enter college	2	1
Some college work but no degree	7	0
Bus. or spec. trg for job, no degree	6	5
Associate arts degree	5	2
Nursing or other diploma wi/o degree	1	0
Bachelor's degree	19	10
College work after bachelors	3	4
Master's degree	6	16
Law degree	0	2
Doctor's degree, other advanced degree	1	3
Expected date of goal completion		
Already completed	5	1
1970	3	11
1971	7	8
1972	3	10
1973	7	2
1974	3	2
1975 or later	17	8
No response	5	1

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Table 2 (continued)

Frequencies of Post-High School Experiences for the Sexes

Experiences		Females (N = 50)	Males (N = 43)
Other training since HS		30	31
Apprentice program		1	1
Hospital nursing program		4	0
Business school program		4	0
Other job-related program		11	2
Armed forces school		0	26
On-the-job training program		22	9
Unemployed	65-66	0	1
	66-67	0	0
	67-68	0	0
	68-69	0	0
Student	65-66	44	32
	66-67	27	20
	67-68	21	9
	68-69	15	19
Housewife	65-66	0	0
	66-67	0	0
	67-68	4	0
	68-69	3	0
Employed	65-66	4	10
	66-67	21	22
	67-68	24	32
	68-69	30	23

Work status:	Females 1965-66	66-67	67-68	68-69	Males 1965-66	66-67	67-68	68-69
not employed	2	2	1	2	0	1	2	1
student, working part-time	23	12	6	4	21	12	2	1
student, working full-time	6	11	12	10	1	4	4	6
student, not employed	15	4	3	1	10	3	2	4
housewife (no work outside)	0	0	4	3	0	0	0	0
working full-time	3	18	21	27	2	8	10	10
working part-time	1	3	3	3	0	0	0	0
military	0	0	0	0	9	15	23	15

	Females	Males
Pleased with earnings		
no response or no current job	9	15
dissatisfied	10	13
satisfied	25	14
very pleased	6	1
Currently employed	40	28 (20 with nonmilitary jobs)

men, on the other hand, had interrupted college for military service, but now were back in school, not working, at time of testing.

The women should be characterized four years after high school graduation as in the work force. Only 3 of the 50 said in 1968-69 that they were housewives, while 37 of the 50 were working full-time. Males, on the other hand, tended to be still in the military or returned to school from the military; only 16 of the 43 were working full-time. The forty women and 20 men with nonmilitary jobs currently employed have been entered into Tables 3 and 4 in terms of Roe's (1956) occupational classification system. Outstanding is the separation of the sexes into organizational activity (female) and technical jobs (male). Not unexpectedly, none of these relatively inexperienced and uneducated persons is to be found at Levels 1 and 2. "Organization" as far as the women were concerned, is a misnomer. There is not much managing things in being a file clerk or running a letter sorting machine or typing. And while their activities, like those of men, were largely in Level 4, the unionized male trades doubtless earn considerably higher wages.

Tables 5 and 6 relay the intended occupations of these men and women. There is the expected shift upwards from Level 4 in the real world to Levels 1 and 2 in the hoped-for world of work. Women and men alike shifted towards Group 7, General Cultural, in which the women saw themselves teaching in high school and the men teaching in college. There was also a shift in men away from technology to organization and an anticipated dropout among women from the work force ten years hence. Thus, a background factor which can be inferred in the sexes is "level of aspiration," and the men

Table 3

Female Occupations Classified by Roe's Group and Level System (N = 50)

Level	Service	Business	Group: Organization	Technology	Science	General Cultural
3			Office manager Mortage loan closer Customer service representative Insurance claims handler	(Draftsman 2)	Licensed practical nurse	Nursery school teacher (no degree)
4	Airline stewardess Cosmetologist		Bank teller (2) Clerk 4 (1) Accounting clerk 2 Credit clerk Keypunch lead operator Secretary 4 (1) Saleslady (Bookkeeper) Admitting clerk Reservations agent Receptionist (Assistant ledger accountant) Data review technician	(Computer programmer) (Data processor)	Senior diet aide	
5	Taxi driver	Tupperware dealer	Postal clerk 2 Typist 2 Telephone operator 2 Clerical assistant Office assistant			
6	Baby sitter		Letter sorting machine operator Posting machine operator			

Note.--Ten women's past employment in parentheses; numbers indicate number of women so employed, otherwise one. No one employed in Outdoor (Group 3) or Arts & Entertaiment (Group 8); no one employed in Levels 1 or 2.

Table 4

Male Occupations Classified by Roe's Group and Level System (N = 43)

Level	Service	Organization	Technology	Outdoor
		Group		
3		Office manager		
4		Retail salesclerk 4	Plumbing & heating estimator (Aircraft inspector) Jig builder Electrician Aircraft technician	
5	(Janitor) Waiter	Baggage clerk	Truck driver Projectionist Press operator	
6			Warehouseman 2 Dockworker, trucks Packer Manufacturing laborer	Seaman

Note.--Six men had unknown job histories; two past employed in parentheses above; 15 men had only military job histories: clerical 4; electronics technicians, 3; aircraft mechanic, guided missile crewman, tank crewman, electronics instructor, voice intercept processor, bandsman, computer maintenanceman, unknown, each 1. No one employed in Business (Group 2), Science (Group 6), General Cultural (Group 7), or Arts & Entertainment (Group 8); no one employed in Levels 1 or 2.

Table 5

Female Intended Occupations Classified by Roe's Group and Level System (N = 50)

Level	Business	Organization	Technology	Science	General Cultural	Arts & Entertainment
				Group		
1				Physician		
2		Supervisory manager	Architect	Veterinarian Statistician	High school teacher 11 Elementary school teacher 2 Vocational school teacher Translator	Museum art restorer
3	Insurance agent 2	Telephone management position Small business owner				Home decorator
4		Secretary 4 Office worker Reservations agent	Computer programmer	Dietary employee		

Note.--No occupations given in Groups 1 (Service), 5 (Outdoor); no occupations given for Levels 5 or 6. Eleven women said they would <u>not</u> be employed; 5 gave unspecified occupations.

Table 6

Male Intended Occupations Classified by Roe's Group and Level System (N = 43)

Level	Service	Organization	Group Outdoor	Technology	General Cultural
1			Oceanographer 2		College professor 4 (history, language, English, political science)
2	Psychologist (BA) Social worker	Banker		Engineer 7 Computer scientist	High school teacher 5 Lawyer 2
3		Buyer Business manager 2 Small business owner			Radio broadcaster
4		Clerk Retail clerk		Electronics technician 3 Aircraft mechanic Railroad engineer Gunsmith	

Note.--Six men gave no response. No Level 5 or 6 occupations given; no occupations given in Groups 2 (Business), 6 (Science), or 8 (Arts and Entertainment).

definitely had a higher one, vocationally as well as educationally, than did the women. To what extent growth in abilities is shaped by such expectations remains unknown.

What can be said about the present sample when tested in high school? Male and female scores combined, the means compare favorably with the population tested in 1964, i.e., the present sample was higher on all measures but one, and significantly higher on reading speed, quantitative skills, and applied mathematics. Separate sex norms were not available for WPC groups tested before 1969. Comparing these men and women, then, with the earliest sex norms, Table 7 reveals that this sample is superior to the typical pre-college testee. As in a previous study using freshman college norms (Lunneborg and Lunneborg, 1968; Lunneborg, 1969) both in this population and this sample, women did better than men on verbal things and men were superior in quantitative skills, spatial ability, and mechanical reasoning. It should be remembered that these comparisons are between a population of high school juniors and the present sample tested as high school seniors.

The important features of Table 8 are the following: the pattern of sex differences observed in high school disappeared upon retesting. Gone is (the nonsignificant) female superiority in English composite, vocabulary, English usage, reading speed, and verbal composite scores. The only thing at which these women were still better was spelling. On the nonverbal tests the men grew increasingly superior in each instance. The column labeled "male minus female mean score increases" shows that even with respect to spelling, although the males were still less proficient than the females, they gained more in spelling ability in the preceding four years. These

Table 7

Means, SDs, and Sex Differences on Test Battery Administered to all High School Juniors, Spring 1969 (Normative population) and to Non-University Sample Tested Autumn 1964

	Test	N	Females 15,250 $\bar{X}$	SD	Diff 2-1	Males 15,130 $\bar{X}$	SD	Diff 2-1	Male-female mean differences
		N 1							
		N 2	50			43			
EC	English composite	1	49.6	9.4	2.9	46.9	9.5	2.1	-2.7
		2	52.5	9.8		49.0	9.3		-3.5
V	Vocabulary	1	49.1	10.2	3.6	48.1	9.8	3.1	-1.0
		2	52.7	9.7		51.2	9.4		-1.5
EU	English usage	1	49.3	8.2	1.5	46.2	8.5	1.7	-3.1
		2	50.8	8.9		47.9	8.9		-2.9
S	Spelling	1	50.0	9.5	3.2	46.7	9.0	1.7	-3.3
		2	53.2	11.8		48.4	9.6		-4.8
RS	Reading speed	1	48.1	8.0	5.4	48.9	8.4	3.5	0.8
		2	53.5	11.1		52.4	9.7		-1.1
RC	Reading comp	1	48.4	10.4	3.3	48.2	10.9	4.0	-0.2
		2	51.7	8.7		52.2	10.6		-0.5
VC	Verbal composite	1	49.1	9.4	3.2	46.2	9.3	3.0	-2.9
		2	52.3	9.6		49.2	9.4		-3.1
QS	Quantitative skills	1	48.0	9.9	2.6	52.3	11.1	3.0	4.3
		2	50.6	8.1		55.3	10.7		4.7
AM	Applied math	1	45.5	9.3	5.1	49.3	10.6	6.6	3.8
		2	50.6	8.1		55.9	10.7		5.3
MA	Math achieve	1	47.3	6.9	2.7	50.7	7.9	3.3	3.4
		2	50.0	9.0		54.0	11.3		4.0
QC	Quantitative composite	1	47.9	8.3	2.9	51.6	9.4	2.8	3.7
		2	50.8	8.2		54.4	11.2		3.6
SA	Space ability	1	45.0	9.6	4.8	47.1	10.1	5.9	2.1
		2	49.8	10.4		53.0	10.4		3.2
MR	Mechanical reasoning	1	42.8	5.8	2.0	52.3	10.0	3.8	9.5
		2	44.8	5.3		56.1	11.2		11.3

Note.--High school junior normative data (1) followed by non-college sample (2). Scores in standard score form, i.e., $\bar{X}$ = 50, SD = 10 in normative population.

Table 8

Means, SDs, and Male-Female Differences for Re- and Pretests in Non-University Sample for the Sexes

Test		Females (N = 50) $\bar{X}$	Females (N = 50) SD	Males (N = 43) $\bar{X}$	Males (N = 43) SD	Male-female mean differences	Male-female mean score increases
English composite	1	52.50	9.83	48.98	9.28	-3.52	
	2	53.32	8.93	53.86	9.78	0.54	4.06***
Vocabulary	1	52.70	9.65	51.23	9.39	-1.47	
	2	57.06	8.92	58.81	10.23	1.75	3.22**
English usage	1	50.84	8.85	47.88	8.89	-2.96	
	2	50.40	7.40	50.12	8.35	-0.28	2.68**
Spelling	1	53.18	11.75	48.40	9.56	-4.78*	
	2	56.48	10.68	52.65	10.32	-3.83	.95
Reading speed	1	53.52	11.07	52.35	9.72	-1.17	
	2	51.04	8.18	54.63	7.91	3.59*	4.76*
Reading comp	1	51.68	8.73	52.16	10.55	0.48	
	2	52.92	10.64	56.70	9.77	3.78	3.30
Verbal composite	1	52.30	9.63	49.21	9.36	-3.09	
	2	54.48	9.05	54.30	9.76	-0.18	2.91**
Quantitative skills	1	50.60	8.05	55.30	10.70	4.70*	
	2	50.14	8.22	59.16	11.98	9.02***	4.52**
Applied math	1	50.58	8.13	55.88	10.68	5.30**	
	2	48.22	8.39	55.33	10.84	7.11**	1.81
Math achieve	1	50.02	8.96	54.02	11.32	4.00	
	2	48.58	5.88	55.61	8.61	7.03***	3.03*
Quantitative composite	1	50.78	8.17	54.40	11.17	3.62	
	2	50.24	7.05	56.81	9.56	6.57**	2.95*
Space ability	1	49.76	10.43	52.98	10.38	3.22	
	2	49.50	10.32	54.91	10.36	5.41*	2.19
Mechanical reasoning	1	44.76	5.25	56.12	11.23	11.36***	
	2	44.80	6.79	57.40	11.05	12.60***	1.24

Note.--First administration (1) followed by second administration (2). Scores in standard score form, i.e., $\bar{X}$ = 50, SD = 10 in high school normative population. *p < .05, **p < .01, ***p < .001 levels of significance. The column to the extreme right is male minus female mean change; positive entries indicate male mean change was greater than female mean change.

male minus female gains are crucial--in eight instances males gained significantly more. In the previous study (Lunneborg, 1969) both men and women gained in all abilities as a result of successfully completing college. The sex differences in that college sample (females slightly superior verbally, males superior quantitatively) true in high school were still true after college, and men and women matured intellectually at the same rate. As Table 3 in Lunneborg and Lunneborg, 1968, shows, the amounts of gain in men and women did not differ. In the present sample, however, in the absence of continuing education, females (1) lost their verbal superiority over males, (2) did not mature (slightly) as did males, and (3) actually declined in several abilities, particularly mathematics.

Figure 1 illustrates this decrement in performance for the current female sample. Entered for contrast are the gains observed in the successful collegiate sample. Especially interesting, in light of their technical occupations and technical military school training, is the greater increase among noncollege males on the verbal tests than on the nonverbal tests. Note that the college experience helped women particularly in spatial ability and mechanical reasoning in comparison to the technically employed males who might have been expected to grow more than any other groups in these special abilities. Frequency distributions of test change scores for the sexes are given in Table 9. Most changes are between plus and minus 10 standard score points. The table reflects the tendency illustrated in Figure 1 for males to gain and females to decline.

While Table 2 suggested critical differences in jobs and educational plans between the sexes, when intervening educational experiences were

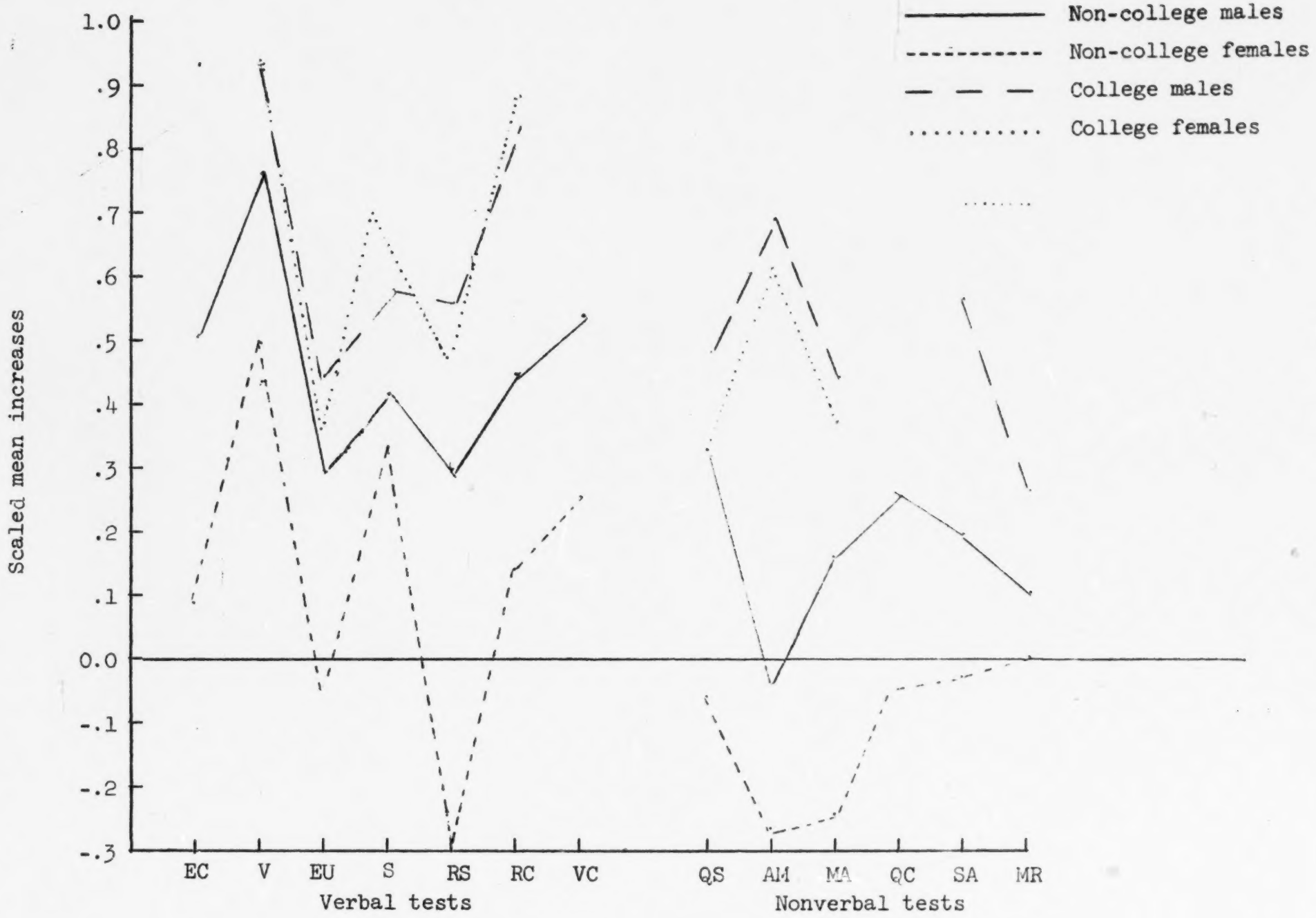

Figure 1. Intellectual gains in and out of college

Note.--Scaled mean increases in terms of standard deviation units for the high school administration to each of these samples, that is $(\bar{X}_2 - \bar{X}_1)/SD_1$. Abbreviations for tests derived from Table 5.

correlated with test difference scores (Table 10), the correlations were generally low and nonsignificant. One would have to conclude that what education had occurred had had little impact on abilities. The small sample sizes make interpretation of the correlations difficult and leave open the question of just how degrees of limited education effect intellectual growth.

Table 11 is a testimony to the stability of this precollege battery. Odd-even reliabilities from an old high school sample are included for comparison with the test-retest correlations for the sexes in both the university sample studied previously (Lunneborg and Lunneborg, 1968) and the present non-university sample. The tests are remarkably stable in both groups. Looking at differences between the sexes in these stability coefficients, in the university sample, females were less stable than males in mechanical reasoning and men less stable in quantitative skills; in the non-university sample, the reverse of this occurred, with quantitative skills less stable for females.

Taking the two studies together, in both there is evidence that within each sex subjects change by a relatively constant amount. Given continuing education, males and females mature intellectually at the same rate. Given a lack of such education, the sexes differ in maturation of abilities--men grow, women do not.

A limitation to these two studies is the great homogeneity within each sample. The finding in both instances that variability in intervening experience was unrelated to aptitude change (Lunneborg and Lunneborg, 1969) cannot be interpreted as meaning that no such relations exist. Had it been possible to study a larger group very heterogeneous with respect to educational

Table 9

Frequency Distribution of Test Change Scores for the Sexes

	Females (N = 50)													Males (N = 43)										
Changes	EC	V	EU	S	RS	RC	VC	QS	AP	MA	QC	SA	MR	EC	V	EU	S	RS	RC	VC	QS	AP	MA	QC	SA	MR
< -15					4	2		1	2	2			1					2	1							2
-11 to -15	2			1	5			2	4	2	3	1					1	3				6		1	1	
-6 to -10	1		9	5	9	6	3	5	9	8	5	12	3	1		1	3	3	4		2	5	6	3	4	6
-1 to -5	16	5	16	5	7	10	8	14	14	18	19	13	18	5	1	9	4	5	6	1	5	8	12	10	11	9
0 to 5	24	27	19	18	13	17	29	21	15	11	17	14	23	18	14	21	16	13	14	24	20	15	13	16	17	13
6 to 10	7	15	4	16	8	11	9	7	4	8	5	6	2	16	17	11	13	11	9	15	13	5	10	8	7	8
11 to 15		3	2	4	3	4	1		1	1		4	2	2	8	1	5	5	3	3	2	4	2	4	1	4
16 to 20				1	1				1		1		1	1	3		1		4		1			1	2	1
21 to 25																		1								
> 25																			2							

Table 10

Test Difference Score Correlations with Intervening

Educational Experience for the Sexes

	Females			Males		
Test	Job-related school	OJT	Total college credit	Armed forces school	OJT	Total college credit
English composite	11	11	-08	09	-41	12
Vocabulary	08	02	-12	01	-27	14
English usage	05	00	-01	01	-19	-04
Spelling	-02	19	18	15	-32	06
Read speed	10	-12	25	25	00	-09
Read comp	04	-04	25	06	24	-08
Verbal composite	11	04	-12	01	-16	03
Quant skills	-08	-04	-02	-12	21	03
Applied math	-01	06	03	-14	-02	10
Math achieve	09	12	-06	00	13	-08
Quant composite	08	-13	03	00	-06	-26
Space ability	11	00	25	08	09	00
Mechanical reas	-12	-32	02	-17	-10	03

Table 11

Stability Coefficients for Test Battery over Four Years in University and Non-University Samples by Sex

(Decimal points omitted)

Test	Non-University				University		
	Odd-even reliability	Females (N = 50)	Males (N = 43)	M-F Non-U Diff	Females (N = 59)	Males (N = 67)	M-F U Diff
English composite		86	91	05			
Vocabulary	95	92	88	-04	71	74	03
English usage	91	81	88	07	65	81	15
Spelling	85	84	80	-04	67	72	05
Read speed		29	46	17	53	44	-09
Read comp	82	75	59	-16	52	63	11
Verbal composite		88	92	04			
Quant skills		76	89	13*	60	48	-12*
Applied math	85	62	76	14	62	62	00
Math achieve	92	69	85	16	79	79	00
Quantitative composite		72	83	11			
Space ability	84	80	80	00	71	76	05
Mechanical reas	75	63	77	14	53	85	32**

*p <.05
**p <.01

experience, such relationships would be expected. However, at the same time, the stability of the tests could be expected to decline.

Conclusion

Perhaps the most important summary statement is the one above regarding similar intellectual growth rates in the sexes in a sample which completed college and dissimilar intellectual growth in a sample which did not go to college. Men and women of equal ability in high school, and with equal amounts of further formal education since high school, were found to be quite different four years later. The women grew less on all tests. They lost their accustomed superiority to males in verbal abilities and they did more poorly on the nonverbal tests than they had in high school, resulting in gross inferiority to men in mathematics. The hypothesized reasons for the difference, given that the amount of intervening educational experience was not different, are several: males continued to grow (slightly) intellectually because they had a higher educational and vocational level of aspiration demonstrated by such variables as greater current enrollment in college, higher and more immediate educational degree plans, higher level of occupational intention--all psychological variables. This study is a stark demonstration of the combined effects of withdrawal from education and of limited life goals upon intelligence.

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